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# Performance Evaluation of Information Technologies for Asset Management Maturity – A Research Agenda

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**ABSTRACT**

Asset managing organizations utilize a variety of information and operational technologies to execute and mange asset management processes. The term 'asset' in engineering organizations is defined as the physical component of a manufacturing, production or service facility, which has value, enables services to be provided, and has an economic life greater than twelve months, such as manufacturing plants, roads, bridges, railway carriages, aircrafts, water pumps, and oil and gas rigs. Engineering enterprises traditionally adopt a technology-centered approach to asset management, where technical aspects command most resources and are considered first in the planning and design stage. However, generally engineering enterprises mature technologically along the continuum of standalone technologies to integrated systems and in so doing aim to achieve the maturity of processes enabled by these technologies. As a result of this approach, asset lifecycle is managed by isolated, stand alone, and fragmented technologies; consequently, there is little integration and connectivity among various lifecycle processes and activities. It is, therefore, important that performance of information technology (IT) investments is measured and managed by accounting for their impact on related areas such as overall IT infrastructure, process maturity, skills set available in the organization, and other organizational factors such as structure and culture.

IT evaluation calls for ascertaining both hard as well as soft benefits to the organization by using quantitative as well as qualitative means and their connection to organizational development. This can only be attained if IT evaluation becomes a strategic advisory mechanism that supports planning, decision making, and management processes, and facilitates organizational learning. This feedback indicates the fundamental reasons, factors, and causes of IT investments. However, evaluation of IT investments by nature is unique and is different from other evaluations, due mainly to the tangible and intangible impacts of IT. IT systems are social systems and their interpretation is influenced by the use and meaning that organizational communities associate with them within the socio technical environment of the organization. Evaluation, therefore, is subjected to the principles, assumptions, and concepts that the evaluators employ in carrying out the evaluation exercise. In a social setting, human interpretation is continuously evolving and thus the interpretation of IT utilization also reshapes due to the changes in business environment and information requirements. Evaluation, thus, represents the current meanings and interests that individuals or communities associate with the use of IT within the organization. In crux, IT evaluation requires a variety of strategic organizational, economic, and social dimensions, and involves external as well as internal customers. It must also enable effective management action such that the results from the evaluation are put into practice and the learnings generated are properly followed up. However, while there are countless performance evaluation systems and methodologies available to businesses of all types, yet research and practice are silent on what is their impact. This impact statement is necessary to assess the suitability of chosen performance management methodology to the applied area(s) or dimension(s) of the business, as well as to ensure that it provides actionable learning such that the organization takes corrective action and engages in continuous improvement. This paper develops the case for performance evaluation of IT utilized for asset management and proposes a research framework for the continuous improvement of IT based asset management.

**Keywords**

Asset Management, information systems, performance evaluation.